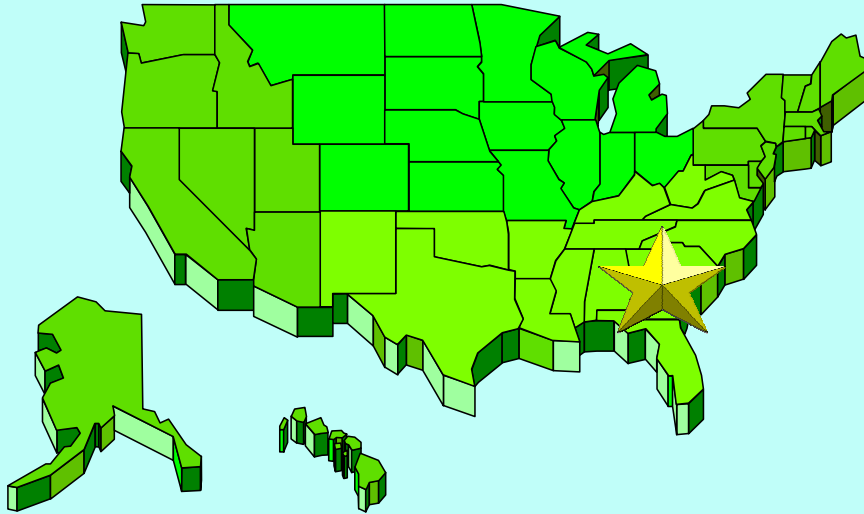




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# *Code Barriers*



*National Energy Code  
Conference  
June 23-25, 2003  
Atlanta, GA*

**Mike DeWein-Technical Director**

**Building Codes Assistance Project**

**David Eisenberg-Executive Director**

**Development Center for Appropriate Technology**

**Steve Andrews**

**Energy Rated Homes of Colorado**

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*BEFORE...*





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Sometimes the requirements in our Building and Energy Codes can work against us, Creating...



# The Building as a Beast!

Let's start a coordinated process today!

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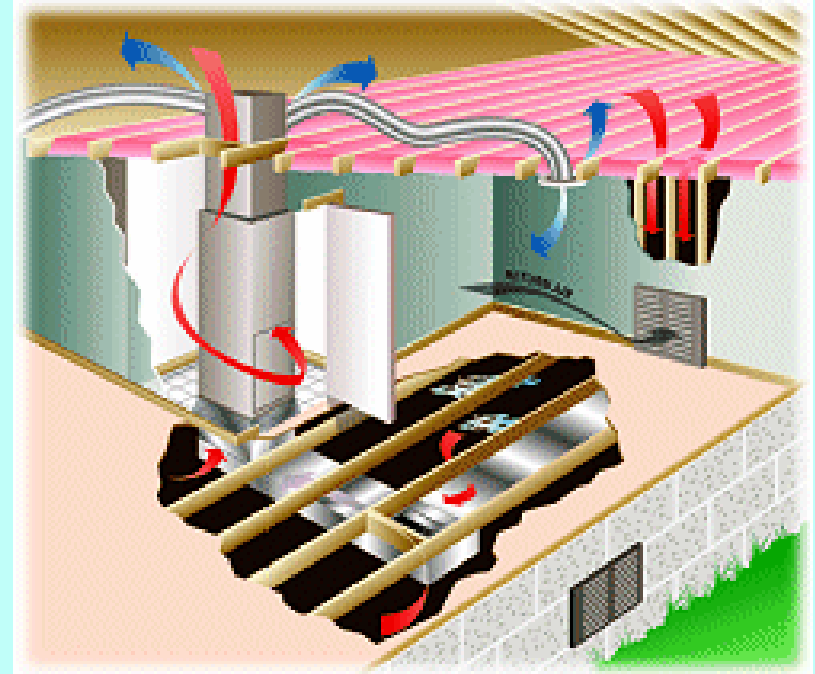
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# The Building is a System

Including:

- Envelope
- HVAC
- HVAC Distribution
- Ventilation
- Other Systems
- OCCUPANTS!



## How can we do a BETTER JOB with Codes?

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# The Conflict:

## Some of the most infamous examples:

- Vented crawlspaces
- Vented Roof/Ceilings
- Vapor Barriers
- Duct Requirements
- Ventilation Requirements
- Cooling Climate envelope requirements







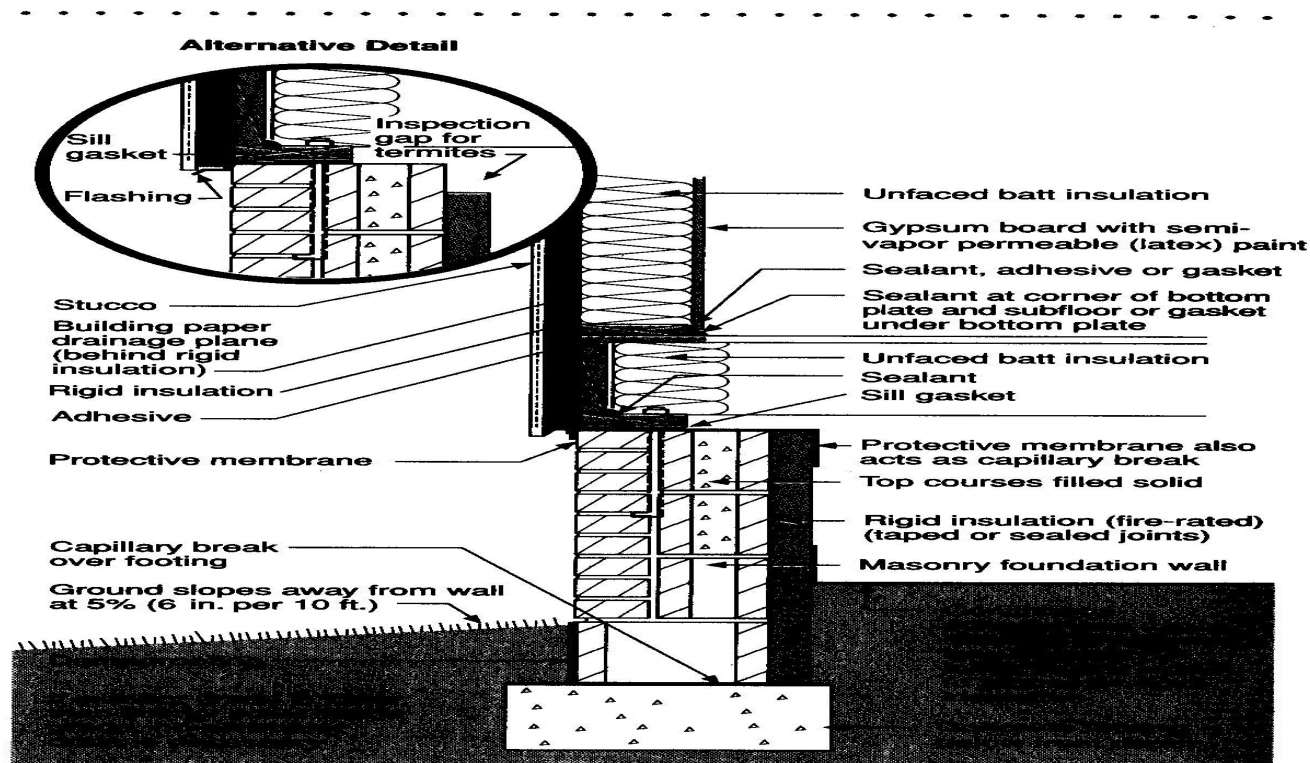
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# Vented Crawlspace



# Healthy, Dry, No Rot Crawlspace



**Figure 7.26**  
**Internally Insulated Masonry Crawl Space — Stucco**

- Protective membrane acts as termite barrier
- Rigid insulation must be fire-rated if it is left exposed on the interior
- Building paper installed shingle fashion acts as drainage plane located behind rigid insulation



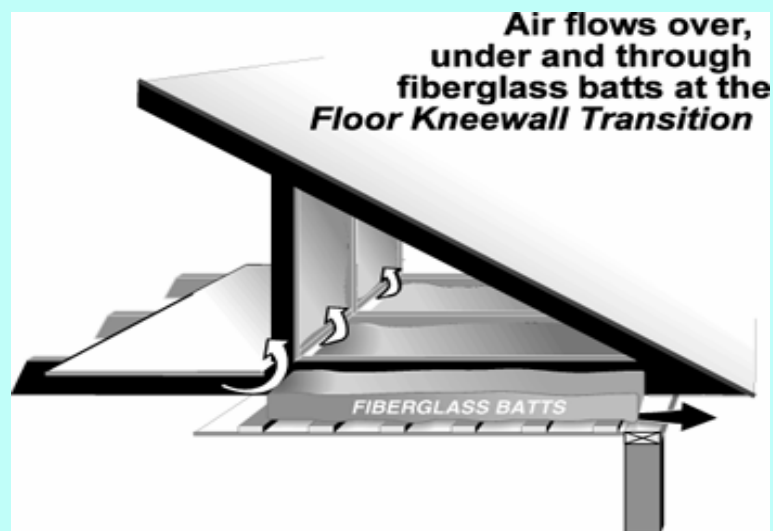
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# Barrier –

# Roof Venting!







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# Problem – Mold!



# Vapor Retarders

*Poly Vapor Retarder*



*Kraft-Faced Vapor Retarder*



# Moisture Control

(Section 502.1.1)

- **Moisture vapor retarder**

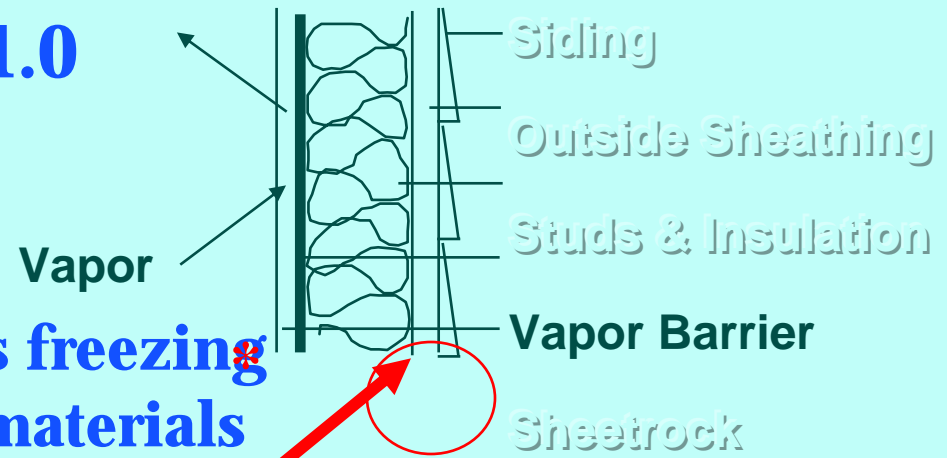
- **max. perm rating of 1.0 perm**

- **Exceptions**

- » **Where moisture or its freezing will not damage the materials**

- » **\*\*\*Hot and Humid Climates\*\*\***

- » **Other approved means to avoid condensation**





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# Duct Requirements (or lack thereof)







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Duct  
Requirements:  
(What we'd like to  
see)





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# Barrier: Ventilation requirements (or lack thereof)



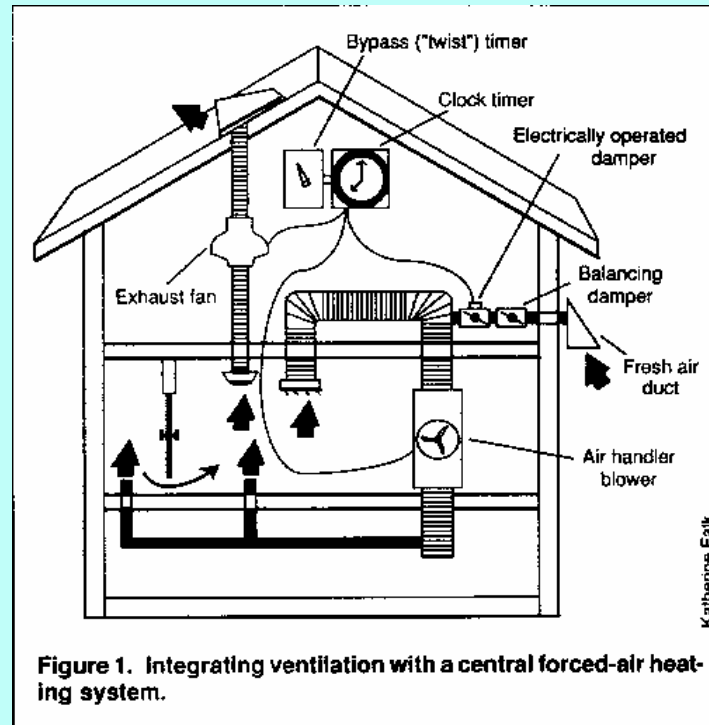
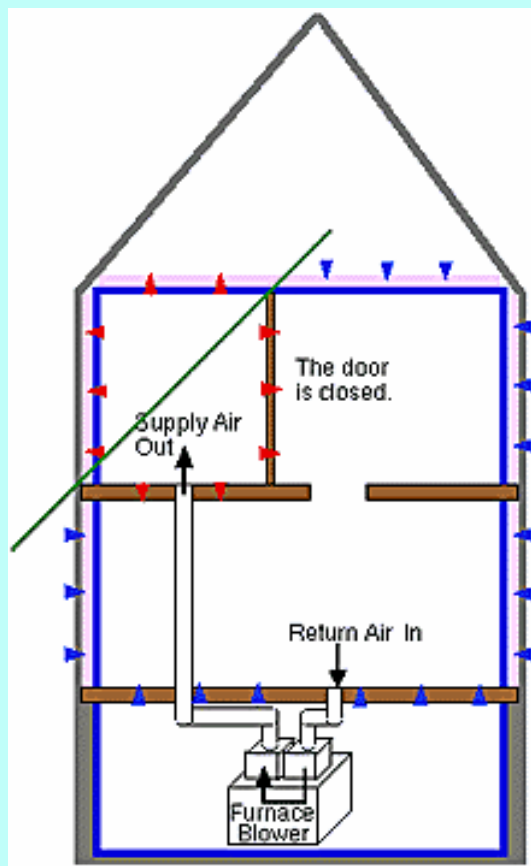


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# Problem -

## Ventilation and Backdrafting





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# Cooling Climate Issues



- Envelope
- Shading
- Orientation
- Windows
- HVAC

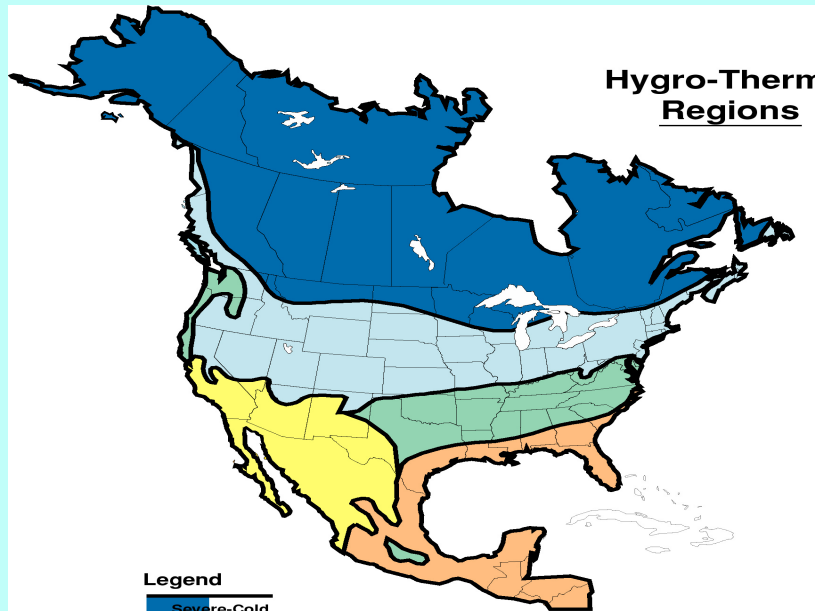


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# Varying Climatological Issues

**Hygro-Thermal  
Regions**



**Legend**

**Severe-Cold**

A severe-cold climate is defined as a region with approximately 8,000 heating degree days or greater

**Cold**

A cold climate is defined as a region with approximately 4,500 heating degree days or greater and less than approximately 8,000 heating degree days

**Mixed-Humid**

A mixed-humid climate is defined as a region that receives more than 20 inches of annual precipitation, has approximately 4,500 heating degree days or less and where the monthly average outdoor temperature drops below 45°F during the winter months

**Hot-Humid**

A hot-humid climate is defined as a region that receives more than 20 inches of annual precipitation and where the monthly average outdoor temperature remains above 45°F throughout the year\*

**Hot-Dry/Mixed-Dry**

A hot-dry climate is defined as a region that receives less than 20 inches of annual precipitation and where the monthly average outdoor temperature remains above 45°F throughout the year;

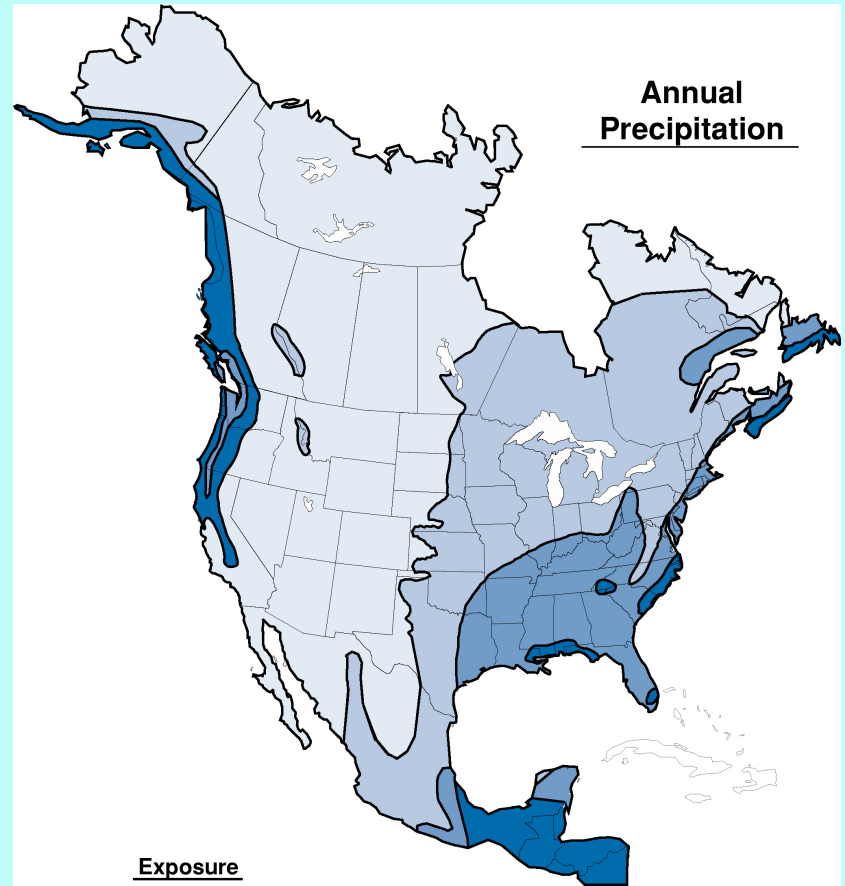
A mixed-dry climate is defined as a region that receives less than 20 inches of annual precipitation, has approximately 4,500 heating degree days or less and where the monthly average outdoor temperature drops below 45° during the winter months

\* The definition characterizes a region that is almost identical to the ASHRAE definition of hot-humid climates where one or both of the following occur:

- a 67°F or higher wet bulb temperature for 3,000 or more hours during the warmest six consecutive months of the year; or
- a 73°F or higher wet bulb temperature for 1,500 or more hours during the warmest six consecutive months of the year

Based on Herbertson's Thermal Regions, a modified Koppen classification, the ASHRAE definition of hot-humid climates and average annual precipitation from the U.S. Department of Agriculture and Environment Canada

**Annual  
Precipitation**



**Exposure**

Extreme	Over 60"	Pressure Equalized Rain Screen/Pressure Moderated Screen
High	40" - 60"	Rain Screen/Vented Cladding/Vented Drainage Space
Moderate	20" - 40"	Drainage Plane/Drainage Space
Low	Under 20"	Face Seal



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# Codes Barriers: How to fix 'em?



## What did We Forget??

- Your Input and Ideas  
Here.....







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# Code Barriers:

## Why do we need to be deal with 'em?



They are part of our collective job,  
allow better performing buildings!

Allow new/better technologies, techniques!

Decrease building liabilities, failures

Support codes where barriers stand in the  
way of adoption/implementation! (i.e. AZ, CA,  
NM, AR, AL, others)





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# Barriers – The Players:

## US-DOE

1. BSGP/PNNL
2. Building America

## US-HUD

1. Health House
2. PATH

## Industry Groups

1. Manufacturers
2. Insurance Industry

## Others:

BCAP

DCAT

BSC

AEC

??





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# Barriers:

## Where do we start?



**Most Important: Coordinate individual efforts**

Collect/Conduct research

Create Code "Toolkits" of resource materials

Outreach and training, program integration!

Code Change Proposals?!



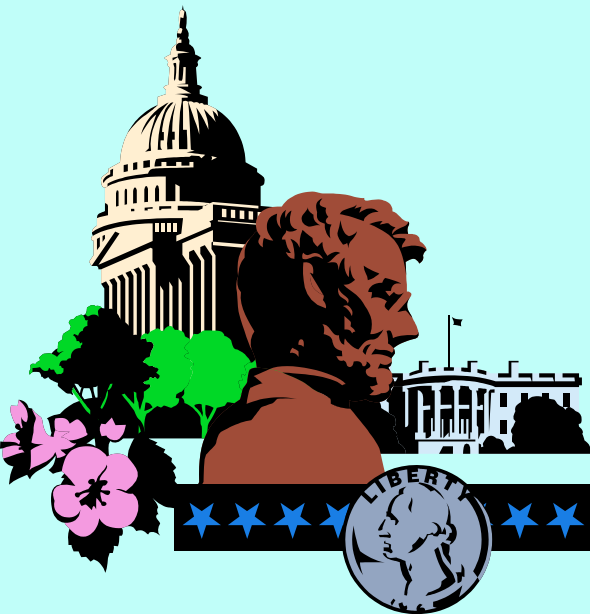
# Why Bother?

Because buildings **AND** the  
construction infrastructure  
work as a system

Can't ignore the codes infrastructure  
as part of the system

Tremendous opportunity to change it  
for the better

Opportunity for all to impact all  
buildings!!





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No.  
126  
April  
'69

# MAD

OUR PRICE  
**35c**  
CHEAP



ILLUSTRATION BY: MING

## WHO NEEDS YOU





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Fx 518.664.5672

dewein.bcap@

prodigy.net

Stakeholder's  
meeting to follow:

Ruth – add where,  
when

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